Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.(Original) A method for detecting data in a code division multiple access (CDMA) wireless communication system, the method comprising:

receiving a plurality of communication signals;

modeling a solution for estimating data of the received communication signals using a linear system requiring a matrix inversion;

determining columns or rows of an approximate Cholesky factor;

determining a difference between the determined columns or rows;

if the determined difference is less than a threshold, determining subsequent columns or rows by repeating previously determined columns or rows;

estimating the data of the received communication signals using the approximate Cholesky factor; and

using the data estimate to detect data received on a plurality of received communications channels.

2.(Currently Amended) The method of claim 1 further comprising using the

approximate Cholesky factor ~~is used~~ to determine ~~the~~ spread data of the received communications in a user detection process comprising one of SUD or MUD, using one of ZF or MMSE data detection approaches.

3.(Original) The method of claim 1 further comprising repeating previously determined columns or rows, if a number of previously determined columns or rows exceeds an upper limit.

4.(Original) The method of claim 1 wherein the linear system is modeled using a minimum mean square error approach.

5.(Original) The method of claim 1 wherein the linear system is modeled using a zero forcing approach.

6.(Original) The method of claim 1 wherein the approximate Cholesky factor is lower triangular.

7.(Currently Amended) The method of claim 1 wherein the approximate Cholesky factor comprises a plurality of K by K blocks <u>where</u> ~~and~~ K is a number of the received signals.

8.(Original) The method of claim 6 wherein the approximate Cholesky factor is determined by columns.

9.(Original) The method of claim 7 comprising using block columns of a multiple equal to one or more L blocks in length where L is the longest length of intersymbol interference.

10.(Original)The method of claim 1 comprising determining an error between normalized blocks of the columns or rows.

11.(Original)The method of claim 1 comprising comparing a first determined block of a newly determined column or row to a corresponding block of a previously determined column or row, prior to determining subsequent blocks of the newly determined column or row.

12.(Currently Amended) A user equipment comprising:

an antenna configured to receive ~~for receiving~~ a plurality of communication signals transmitted in a CDMA format;

a data estimation device configured to estimate ~~for estimating~~ data of the

received communication signals using a linear system requiring a matrix inversion;

said data estimation device configured to determine ~~for determining~~ columns or rows of an approximate Cholesky factor;

said data estimation device configured to determine ~~for determining~~ a difference between the determined columns or rows~~;~~ and, if the determined difference is less than a threshold, to determine ~~for determining~~ subsequent columns or rows by repeating previously determined columns or rows;

said data estimation device configured to produce an estimate of ~~for estimating~~ the data of the received communication signals using the approximate Cholesky factor; and

~~using the estimate~~ said data estimation device configured to detect data received on a plurality of received communications channels using the estimate.

13.(Currently Amended) The user equipment of claim 12 wherein the data estimation device is configured to use ~~uses~~ the approximate Cholesky factor to determine ~~the~~ spread data of the received communications in a user detection process comprising one of SUD or MUD, using one of ZF or MMSE data detection approaches.

14.(Currently Amended) The user equipment of claim 12 wherein:

the data estimation device further includes a circuit configured to repeat ~~function for repeating~~ previously determined columns or rows, if a number of previously determined columns or rows exceeds an upper limit.

15.(Currently Amended) The user equipment of claim 12 wherein:

the data estimation device further includes a circuit configured to repeat ~~function for repeating~~ previously determined columns or rows, if a number of previously determined columns or rows exceeds an upper limit; and

the data estimation device is configured to compare ~~compares~~ a first determined block of a newly determined column or row to a corresponding block of a previously determined column or row, prior to determining subsequent blocks of the newly determined column or row.

16.(Currently Amended) The user equipment of claim 12 wherein the data estimation device is configured to use an approximate Cholesky factor that is lower triangular.

17.(Currently Amended) The user equipment of claim 12 wherein:

the data estimation device is configured to use an approximate Cholesky factor that comprises a plurality of K by K blocks and K is a number of the received

signals;

the data estimation device is configured to determine the approximate Cholesky factor ~~is determined~~ by block columns~~; and~~ where the block columns comprise a multiple equal to one or more L blocks in length and L is the longest length of intersymbol interference.

18.(Currently Amended) A base station comprising:

an antenna configured to receive ~~for receiving~~ a plurality of communication signals transmitted;

a data estimation device configured to estimate ~~for estimating~~ data of the received communication signals using a linear system requiring a matrix inversion;

said data estimation device configured to determine ~~for determining~~ columns or rows of an approximate Cholesky factor;

said data estimation device configured to determine ~~for determining~~ a difference between the determined columns or rows~~;~~ and, if the determined difference is less than a threshold, to determine ~~for determining~~ subsequent columns or rows by repeating previously determined columns or rows;

said data estimation device configured to produce an estimate of ~~for estimating~~ the data of the received communication signals using the approximate Cholesky factor; and

~~using the estimate~~ said data estimation device configured to detect data received on a plurality of received communications channels using the estimate.

19.(Currently Amended) The base station of claim 18 wherein the data estimation device is configured to use ~~uses~~ the approximate Cholesky factor to determine ~~the~~ spread data of the received communications in a user detection process comprising one of SUD or MUD, using one of ZF or MMSE data detection approaches.

20.(Currently Amended) The base station of claim 18 wherein:

the data estimation device further includes a circuit configured to repeat ~~function for repeating~~ previously determined columns or rows, if a number of previously determined columns or rows exceeds an upper limit.

21.(Currently Amended) The base station of claim 18 wherein:

the data estimation device further includes a circuit configured to repeat ~~function for repeating~~ previously determined columns or rows, if a number of previously determined columns or rows exceeds an upper limit; and

the data estimation device is configured to compare ~~compares~~ a first determined block of a newly determined column or row to a corresponding block of a

previously determined column or row, prior to determining subsequent blocks of the newly determined column or row.

22.(Currently Amended) The base station of claim 18 wherein the data estimation device is configured to use an approximate Cholesky factor that is lower triangular.

23.(Currently Amended) The base station of claim 18 wherein:

the data estimation device is configured to use an approximate Cholesky factor that comprises a plurality of K by K blocks and K is a number of the received signals;

the data estimation device is configured to determine the approximate Cholesky factor ~~is determined~~ by block columns~~; and~~ where the block columns comprise a multiple equal to one or more L blocks in length and L is the longest length of intersymbol interference.

24.(New) A method for detecting data in a wireless communication system, the method comprising:

receiving a plurality of communication signals;

modeling a solution for estimating data of the received communication

signals using a linear system requiring a matrix inversion;

determining columns or rows of an approximate Cholesky factor including:

determining a first block of a new column or row after determining a non-replicated prior column or row;

determining a difference between the first block of the new column or row and a corresponding first block of the prior determined column or row;

if the determined difference is less than a threshold, determining subsequent blocks of the new column or row by replication of corresponding blocks of the prior determined column or row and determining subsequent columns or rows by repeating previously determined columns or rows; and

estimating the data of the received communication signals using the approximate Cholesky factor.

25.(New) The method of claim 24 wherein the determining columns or rows of an approximate Cholesky factor further includes determining further columns or rows by replication of a previously determined ~~columns~~ or ~~rows~~, if a number of previously determined columns or rows exceeds an upper limit.

26.(New) The method of claim 24 wherein the linear system modeling uses a minimum mean square error approach.

27.(New) The method of claim 24 wherein the linear system modeling uses a zero forcing approach.

28.(New) The method of claim 24 wherein the approximate Cholesky factor that is determined is lower triangular.

29.(New) The method of claim 24 wherein the approximate Cholesky factor that is determined comprises a plurality of K by K blocks where K is a number of the received signals.

30.(New) The method of claim 24 wherein the approximate Cholesky factor is determined by columns.

31.(New) The method of claim 30 wherein block columns are determined that are L blocks in length where L is the longest length of intersymbol interference.

32.(New) The method of claim 30 wherein block columns are determined that are 2L blocks in length where L is the longest length of intersymbol interference.

33.(New) The method of claim 24 wherein the approximate Cholesky factor is determined by rows.

34.(New) The method of claim 24 wherein the determining a difference is based upon an error determination between normalized blocks of the columns or rows.

35.(New) A wireless communication apparatus configured to receive a plurality of communication signals comprising:

a data estimation component configured to estimate data of the received communication signals using a linear system requiring a matrix inversion and an approximate Cholesky factor;

a processing component configured to determine columns or rows of the approximate Cholesky factor;

said processing component configured to determine a first block of a new column or row after determining a non-replicated prior column or row; and

said processing component configured to determine a difference between the first block of the new column or row and a corresponding first block of the prior determined column or row and, if the determined difference is less than a threshold, to determine subsequent blocks of the new column or row by replication of

corresponding blocks of the prior determined column.

36.(New) The wireless communication apparatus of claim 35 wherein said processing component is configured to replicate a previously determined column or row, if a number of previously determined columns or rows exceeds an upper limit or if the determined difference is less than a threshold.

37.(New) The wireless communication apparatus of claim 35 wherein the data estimation component is configured to use a minimum mean square error approach.

38.(New) The wireless communication apparatus of claim 35 wherein the data estimation component is configured to use a zero forcing approach.

39.(New) The wireless communication apparatus of claim 35 wherein said processing component is configured to approximate a Cholesky factor that is lower triangular.

40.(New) The wireless communication apparatus of claim 35 wherein said processing component is configured to approximate a Cholesky factor that

comprises a plurality of K by K blocks where K is a number of the received signals.

41.(New) The wireless communication apparatus of claim 35 wherein said processing component is configured to determine the approximate Cholesky factor by columns.

42.(New) The wireless communication apparatus of claim 41 wherein said processing component is configured to determine block columns that are L blocks in length where L is the longest length of intersymbol interference.

43.(New) The wireless communication apparatus of claim 41 wherein said processing component is configured to determine block columns that are 2L blocks in length where L is the longest length of intersymbol interference.

44.(New) The wireless communication apparatus of claim 35 wherein said processing component is configured to determine the approximate Cholesky factor by rows.

45.(New) The wireless communication apparatus of any of claims 35 wherein said processing component is configured to determine a difference by

determining an error between normalized blocks of the columns or rows.

46.(New) A base station comprising the wireless communication apparatus of claim 35.

47.(New) A User Equipment comprising the wireless communication apparatus of claim 35.